Ancient Monuments Lab Report No 4696

REPORT ON HUMAN SKELETAL REMAINS
CATTERICK BRIDGE, NORTH YORKSHIRE

The human skeletal remains from Catterick consist of a group of 24 inhumation burials, plus a small amount of miscellaneous bone recovered from various contexts. Preservation of the bone matrix was generally very poor, and many of the skeletons consisted of no more than a few badly eroded longbone shafts and cranial fragments. Only four skeletons could be described as being in a fair condition.

Green staining was noted on 3 individuals: 8310057 on the upper end of the left femur, 8310077 around both right and left wrists, and 8310560 on the lower right leg.

The burials were examined for details of sex, age, stature and for dental and skeletal anomalies and pathology. Certain metrical and non-metrical data were recorded, where preservation permitted, but due to the very small numbers involved, analysis of these data has not been carried out.

SEX

Assessment of sex was only attempted for the adult skeletons, due to the unreliability of sexing criteria for subadaults. The results are given below:

Table 1: Sex determination

Sex	No.
Male	7
?Male	4
Female	1
?Female	3
Unsexed adults	4
Unsexed subadults	5
	24

Very little can be said about these results, owing to the extremely small size of the sample, although the predominance of probable and possible males over females should be noted.

AGE

For comparative purposes, the results of age estimation have been divided into 5-year groupings for both subadults and adults, although it must be emphasised that beyond the age of 20 years these divisions are not to be taken as exact, and should rather be regarded as indicating death in young adulthood, middle or old age. The results are shown in Table 2:

Table 2: Estimation of age at death

Age	No.	
0-5	2	**
5-10	1	*
10-15		
15-20	1	*
20-25	5	*****
25-30	5	*****
30-35	1	*
35-40	1	*
Subadult	1	*
Adult	5	*****
??	2	**
	24	

The majority of those to whom an age estimate could be given appeared to have died between the ages of approximately 20 to 30 years. Due to the poor preservation, estimation of age at death for the adults was generally based on molar wear alone (Brothwell 1981), and could not be checked against other criteria, such as age-related changes at the pubic symphysis.

STATURE

Stature could only be calculated for two of the females and six of the males, consequently no interpretation of the results is possible. Estimated stature is shown in the table below:

Table 3: Estimation of stature

Height (m)	Females	Males
1.55 - 1.59	*	
1.60 - 1.64	*	
1.65 - 1.69		****
1.70 - 1.74		*
1.75 - 1.79		*

DENTITION

The dentition of 12 adults was available for examination (8 males and ?males, 4 females and ?females).

Caries

Caries cavities were present in 6 individuals, 4 of whom had more than one tooth affected. Out of a total of 277 teeth present in the sample, 17 were carious, giving a frequency of 6.14%. Although the sample size was small, the frequency was consistant with the findings from Cirencester of 5.1% (Wells 1982) and Trentholme Drive of 4.4% (Cooke and Rowbotham 1968), although less than the 11.4% from pooled Romano-British sites reported by Brothwell (1959).

Molars are most commonly affected by caries (Moore and Corbett 1973) and indeed at Catterick all the carious teeth were molars. Eleven were maxillary and 6 were mandibular; however 6 of the maxillary teeth were from one individual, so it is not possible to suggest that one jaw was more susceptible than the other to carious attack. In 3 cases the tooth was completely destroyed by caries, with

only the roots remaining, but where the focus of decay could be determined, 6 were on the mesial or distal surfaces, 6 on the buccal and 2 on the occlusal surface. There was an even division between those at the cemento-enamel junction (7) and those on the crown (7).

Only 10 deciduous teeth were present, from 2 individuals, and no caries cavities were found in these.

Abscesses

A total of 6 abscesses were present in 3 individuals. All occurred at the roots of molars. In 3 cases the teeth were present, although their crowns were destroyed by caries, leaving only the roots, while in the other 3 cases, the teeth had been lost postmortem. These may well have been carious also. Two abscesses drained into the mouth, both in the same individual - 8310139. Burial 8310340 had a rounded smooth opening on the buccal surface of the maxilla near the root of the right second premolar, Burial 8310340(Plate 1), superior to which the bone appeared thin and pitted, while the floor of the maxillary sinus had been lifted and its surface had become roughened and finely perforated, suggesting an inflammatory reaction. An X-ray shows the presence of a large cavity which also encompassed the roots of the neighbouring first molar. However, the teeth appeared to be healthy and vital, with no evidence either of caries or of pulp exposure due to excessive wear, making the cavity difficult to explain. It was presumably infected to have discharged into the mouth as it appeared to have done.

Antemortem tooth loss

A total of 18 teeth had been lost antemortem in 3 individuals. Antemortem tooth loss largely occurs as the result of dental caries or of periodontal disease, with the latter probably being the more important factor, especially in older individuals. There was no conclusive evidence for deliberate extraction.

Periodontal disease

Where present, the degree of alveolar resorption (or recession of the bone around the teeth) was recorded as either slight, medium or considerable, in an attempt to assess the prevalence of periodontal disease. Resorption was generally absent or slight; in only two cases was it recorded as medium. In 8310267 there was considerable wear on the teeth, and it is likely that compensatory tooth eruption had occurred as the occlusal surfaces wore down, giving the same appearance as alveolar recession. In 8310139 medium recession had taken place around all the mandibular teeth. The alveolar bone on the facial surface was thickened and nodular at the base of the incisors and canines, and was porous and spicular between the teeth. This suggests the presence of chronic periodontal disease.

Hypodontia and Malocclusion

Hypodontia describes the absence of certain teeth from the dentition, the tooth most commonly affected being the third molar. This tooth also shows the greatest variability in crown form, and reduction forms or 'premolarisation' of the tooth are not rare. At Catterick, Burial 8310136 showed congenital absence of the lower left wisdom tooth, with the lower and upper right teeth very considerably reduced in size. The upper left maxilla had been damaged postmortem, so the condition of the fourth wisdom tooth could not be determined. Burial 8310077 also showed reduction forms of the two maxillary third molars.

Three individuals had rotation of one or more teeth. Burial 8310267 had a maxillary canine rotated by ca 90°; 8310136 had a second mandibular premolar rotated by approximately 60°, and in Burial 8310139, 3 maxillary teeth - a lateral incisor and a first and second premolar - were rotated by approximately 45°. Crowding of the anterior teeth occurred in 3 individuals, involving the lower incisors in Burials 8310166 and 8310517, and the upper incisors in Burial 8310560.

BONE PATHOLOGY

Due to the generally poor preservation of bone, there was relatively little evidence of disease in this group.

Two individuals were found to have spondylolysis, a vertebral defect usually affecting the lower lumbar vertebrae, whereby there is non-union at the pars interarticularis. The aetiology of spondylolysis is uncertain - there does appear to be a heritable tendency, although environmental and occupational influences are important. Recent evidence suggests that the fracture is the end result of repeated stress acting upon the neural arch (Cyron and Hutton 1978) and tending to occur in individuals under the age of 30. The incidence varies between populations, for example 3.5% in South Africans (Eisenstein 1978) and over 40% in Eskimos (Stewart 1953). Unfortunately the exceptionally small sample at Catterick does not permit any interpretation or comparison with other skeletal series, since only 6 skeletons had an identifiable fifth lumbar vertebra, of which two had spondylolysis.

Schmorl's nodes were present in 3 of the 4 individuals whose spines were complete enough to permit observation of vertebral bodies. These depressions occur as the result of prolapse of intervertebral disc material into the vertebral body, and can be produced by various processes, including trauma, metabolic disorders and degenerative disc disease. All three cases at Catterick involved the lower thoracic and upper lumbar vertebrae, with nodes occurring as often in the superior as the inferior surfaces.

Cribra orbitalia was present in 4 individuals, from a total of 11 with observable sites. Three were young adults, the fourth a child aged approximately 9-10 years. This lesion, which appears as pitting on the roof of the orbits, is thought to develop in cases of chronic anaemia during childhood.

There was very little evidence of degenerative joint disease, possibly in part due to the apparently young age at death of the individuals and in part to the postmortem loss of many of the articular ends of the longbones and the extremely fragmentary nature of the majority of spinal columns.

Spinal osteophytes, bony lipping at the margins of the vertebral body, were present in 2 cases. Burial 8310166 had slight osteophytes present on the 5th thoracic vertebra only, while 8310139 had slight osteophytes on 4 cervical, 3 central thoracic and 2 lumbar vertebrae. The cervical osteophytes were associated with slight osteochondrosis, where perforations on the vertebral body indicated disc degeneration.

The articular facets of the vertebrae had undergone osteoarthrotic changes in 2 cases. In Burial 8310129, the facets between 2 cervical vertebrae were enlarged and porous in appearance with eburnation, or polishing of the bone surface from friction with the opposing bone, present on the right side. In addition, degenerative changes were present on the right facets of 3 thoracic fragments, in the form of porosity of the articular surface. In Burial 8310340, the left intervertebral facets of 2 thoracic vertebrae were slightly enlarged with small areas of pitting.

The only other evidence for possible degenerative joint disease was the presence of slight marginal lipping of the right femoral head in Burial 8310139. There were no accompanying changes to the articular surface, however, and the lipping may only represent a very early stage in joint degeneration.

A relatively frequent finding in skeletal series, although one which often cannot be satisfactorily explained, is periosteal inflammatory reaction, whereby new bone is deposited on the surface of the cortex. It often occurs on the lower

legs, and in Burial 8310517 both fibulae were affected. The bone surface appeared irregular, with patches of raised and striated bone. The specific aetiology of this reaction is unknown.

In Burial 8310267 there was slight periosteal reaction within the right maxillary sinus. The new bone appeared greyish in colour with a finely pitted surface. It was probably the result of chronic maxillary sinusitis, a disorder not uncommon today and which is, in most cases, a bacterial infection.

Lesions present in Burial 8310560 may represent a more specific infectious disease. There had been destruction of the superior surface of the first sacral vertebral body and the inferior surface of the 5th lumbar vertebral body. Although postmortem damage had taken place, several smooth-walled cavities suggested the presence of abscesses within the bone (Plate 3). In addition there were patches of new bone formation on the anterior surface of the first three sacral vertebrae, lighter in colour than the normal cortex and pitted and irregular in appearance and pitted and iregular in appearance (Plate 4). No definite diagnosis could be made.

Further bone pathology was present in Burial 8310560, where fusion had occurred between certain bones of the right foot. The navicular and the 3 cuneiforms were fused into one solid block. The 2nd and 3rd right metatarsals were also fused together proximally for about a quarter of their length (Plate 5). The joint surfaces between these 2 metatarsals and the intermediate and lateral cuneiforms showed very considerable pitting and irregularity, although ankylosis had not taken place. These changes appeared to be unilateral, although postmortem damage had affected the left tarsals and metatarsals to a greater extent than the right. It seems likely that there had been infection of the right foot, of unknown cause. The possibility that this and the spinal pathology had a common cause was considered. However with the evidence available it was not feasible to take this any further.

SUMMARY

Twenty-four individuals from Catterick Bridge, North Yorkshire, were examined in the laboratory. Bone preservation was generally poor. Age and sex was estimated for the majority of burials, but stature could only be calculated in a few cases. The predominance of males over females suggests that the remains do not represent a normal biological population. Dental disease appears to be within the expected limits for the Romano-British period, while bone pathology includes several cases of infection and evidence that some individuals suffered from iron-deficiency as children.

References

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Cooke, C and Rowbotham, T C — 1968 Dental report, in The Romano-British Cemetery at Trentholme Drive, York, ed. L.P. Wenham, 177-216. London: HMSO.

Cyron, B M and Hutton, W C — 1978 The fatigue strength of the lumbar neural arch in spondylolysis. J Bone Joint Surg. 60-B: 234-238.

METHODS

Sexing

Both morphological and metrical variables were considered when attempting to sex individuals. For the pelvis, the main morphological features observed were the width of the sciatic notch, presence or absence of a preauricular sulcus, and the shape of the sub-pubic angle of the innominates, together with the width of the first sacral vertebrae in relation to the sacral alae, and the length of the auricular surface on the sacrum. For the skull, the features considered were the size of the mastoids, the size of the supraorbital ridges, the extent to which the posterior root of the zygomatic process continued beyond the external auditory meatus, and the development of the nuchal crest. In cases where the sexing criteria of pelvis and skull tended to contradict one another, the characteristics of the pelvis were preferred.

Bone measurements used for sex determination include the longitudinal diameter of the femur head, the bicondylar width of the femur, the longitudinal and transverse diameter of the head of the humerus, the epicondylar width of the humerus, and the length of the clavicle (Krogman 1978).

Ageing

Age at death for the subadult individuals was assessed from the state of tooth eruption (Brothwell 1981) and epiphyseal fusion of the bones (Gray's anatomy 1980). For the adults, the degree of tooth wear on the molars was assessed (Brothwell 1981) together with the metamorphosis of the pubic symphysis (Ubelaker 1980).

Stature

Stature was calculated for adults only, using the formulae developed by Trotter (1970).

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INDIVIDUAL SUMMARIES

8310023

Right and left arm and leg fragments, very badly eroded.

8310037

Relatively complete skeleton, though clavicles, sternum and majority of vertebrae are absent and skull is fragmentary. Bone in poor condition, considerably eroded. Male, based on morphological characteristics of the pelvis. Age: adult. Stature 167.56 ± 3.27 using femur.

8310057

Eroded fragments of skull and lower half of child's skeleton. Green stain on proximal end of left femur anteriorly. Age approximately 3-5 years based on comparison of size with other skeletons of known age.

8310073

Leg and upper arm shaft fragments, badly eroded, plus 13 loose teeth. Age approximately 16-18, based on the beginning of fusion of the proximal tibial epiphyses and on lack of tooth wear.

8310077

Mainly right half of skeleton, generally very fragmentary, especially skull and vertebrae. Green stains around distal ends of both right and left radii and ulnae. Size of bones suggest ?female. Age: 25-30 based on molar wear. Stature 163.95 + 4.24, using radius.

8310104

Small eroded fragments of humerus, femur, pelvis and ribs.

8310105

Legs only, fragmentary and splintered shafts, badly eroded ends. thickness of femoral shaft fragments suggest ?adult male.

8310128

Fragments of skull, left shoulder and arm, slightly eroded. Morphological characteristics of skull indicate ?female. Age: 20-25 based on molar wear.

8310129

Skull, left arm and right leg of skeleton, poorly preserved and fragmented. Morphological characteristics of skull indicate ?male. considerable antemortem tooth loss and spinal arthrosis suggest mature/old adult.

8310134

Left malar bone and one fragment of frontal bone. Thickness of cranial fragment suggests adult.

8310136

Most of skeleton represented, though bones are incomplete and most of the vertebrae are missing. Some surface erosion. Male, from morphological characteristics of pelvis and skull, and from size and muscularity of longbones. Age 20-25 based on molar wear.

8310139

Virtually complete skeleton, bones broken but little erosion present. Male, from morphological characteristics of pelvis and skull, and from bone measurements. Age 25-30, from molar wear and age-related changes at the pubic symphysis. Stature 165.34 ± 2.99 using femur and tibia.

8310155, 8310157, 8310159

All appear to be the same individual. Skull relatively complete, rest of skeleton broken and incomplete, but most parts of the body are represented. Some surface erosion. Female, from morphological characteristics of pelvis and skull, and from those few bone measurements which could be taken. Age 30-35 based on molar wear (although considerable wear on anterior teeth suggests this may be an underestimation). Stature 155.97 ± 4.30, using ulna.

8310163

Fragments of skull and left humerus, plus lower legs. Considerably eroded, especially longbone ends. Slight wear on molars indicates young adult, ?20-25.

8310166

Relatively complete skeleton, although right leg is missing. Bones fragmented, especially vertebrae and pelvis; some erosion present. Male, from morphological characteristics of pelvis and skull and from bone measurements. Age 25-30, based on molar wear. Stature 174.27 ± 4.32 using radius.

8310234

Cranium, pelvic fragments, arm and leg bones, all very eroded. ?Male, from morphological characteristics of skull. Epiphyses all appear to be fused, therefore adult.

8310267

Virtually complete skeleton, though pelvis and vertebrae fragmented. Slight erosion of some bone surfaces, but preservation generally relatively good. Male, from morphological characteristics of pelvis and skull and from bone measurements. Age 35-40 based on molar wear. Stature 177.56 ± 2.99, using femur and tibia.

8310268

Skeleton of child, mainly longbones and skull, in a very poor state of preservation. Age 9-10 (+ 2 years) based on tooth eruption.

8310340

Relatively complete skeleton, in fairly poor condition. Surface erosion on many bones. Male, based on morphological characteristics of pelvis and skull and on those few bone measurements which could be taken. Age 25-30, based on molar wear. Stature 169.7 ± 3.27, using femur.

8310341

Fragments of skull, pelvis and right leg. Considerable surface erosion, especially of skull. ?Female, from width of sciatic notch. Age: 25-30 based on molar wear.

8310342

Fragments of skull and right arm, all badly eroded. Basilar suture and vertebral plates unfused, odontoid process completely fused, skull fragments relatively thin and those teeth present show little wear, therefore over 12 years but less than 23 years of age.

8310412

Child's skeleton, incomplete, although most of body represented. Poor preservation, erosion of bone surface. Age 2-5 based on state of epiphyseal fusion and tooth eruption.

8310517

Virtually complete skeleton, some surface erosion. Spine, pelvis and skull badly broken. Male, from morphological characteristics of pelvis and skull and from bone measurements. Age 20-25 based on molar wear, epiphyseal fusion and age-related changes at the pubic symphysis. Stature 169.24 ± 2.99 using femur and tibia.

8310560

Relatively complete skeleton, considerably eroded. Green staining on distal third of right tibia and fibula. Sexing criteria of pelvis and skull are somewhat ambiguous, elements of both male and female, tending slightly more towards ?male. Age 20-25 based on molar wear.

INDIVIDUAL RESULTS - QUICK REFERENCE

Burial	Sex	Age	Stature (m)
8310023	-	-	-
8310037	Male	Adult	1.67
8310057	3-5		-
8310073		16-18	-
8310077	?Female	25-30	1.63
8310104	-	-	—
8310105	?Male	Adult	-
8310128	?Female	20-25	-
8310129	?Male	Adult	-
8310134	?Adult		-
8310136	Male	20-25	—
8310139	Male	25-30	1.65
8310159	Female	30-35	1.55
8310163	-	?20-25	—
8310166	Male	25-30	1.74
8310234	?Male	Adult	—
8310267	Male	35-40	1.77
8310268	-	9-10	-
8310340	Male	25-30	1.69
8310341	?Female	25-30	-
8310342	-	-	-
8310412	-	2-5	-
8310517	Male	20-25	1.69
8310560	?Male	20-25	-

PATHOLOGY AND DEVELOPMENTAL ANOMALIES - INDIVIDUAL RESULTS

When referring to vertebrae, C = cervical, T = thoracic, L = lumbar, (s) = the superior body surface and (i) = the inferior body surface.

8310129

Spinal osteoarthrosis:
1 cervical vertebra, right and left inferior intervertebral facets, porous appearance with eburnation on right side.
1 cervical vertebra, right and left superior facets, as above.
3 thoracic fragments - evidence of considerable degeneration on right facets, marked porosity.

8310136

Cribra orbitalia, slight, in roof of right orbit (left damaged).

8310139

Spondylolysis, L5
Slight osteochondrosis: C3 (i), C4 (i), C5 (s,i), C6 (s).
Slight osteophytes: posterior - C3, C4, C5; anterior: C5, C6, T5, T6, T7, L1, L2.
Schmorl's nodes: T10 (s,i), T11 (s,i), T12 (s), L1 (s,i).
Slight marginal lipping of right femoral head.

8310166

3rd trochanter, left femur
Spinal osteophytes: T5
Schmorl's nodes: T7 (s,i), T9 (i), T10 (s,i), T11 (s,i).

8310240

Lateral squatting facets, left tibia (right damaged).

8310267

Schmorl's nodes, T11 (i), L3 (s).
Exostosis, right calcaneus, length ca 8 mm, at the site of attachment of the extensor brevis digitorum muscle.
Slight periostitis within the right maxillary sinus. Greyish colour, finely pitted appearance. Probably bone reaction as a result of chronic maxillary sinusitis.

8310268

Cribra orbitalia, slight, right and left orbits.

8310340

?Osteochondritis dissecans, right navicular. Posterior surface, articulation with talar head. Lesion measuring ca 7.5 x 5.5 mm. Irregular depression, varying in depth between ca 1 and 3 mm. Floor smooth, no trabeculae visible.
Spinal arthrosis: slight degenerative changes to the left intervertebral facets of 2 thoracic vertebrae.
Almost circular hole, approximately 3 mm in diameter and 7 mm deep, in the non-articular area of the external surface of the right lunate.

Possibly developmental.
Unusually circular and flattened occipital condyles.

8310517

Spondylolysis, L5
Cribra orbitalia, slight, right and left orbits.
Lateral squatting facets, right tibia
Periostitis: Shafts of right and left fibulae show patches of slightly raised and striated bone.

8310560

Cribra orbitalia, slight, left orbit (right damaged).
Ankylosis: right navicular and the 3 cuneiforms are fused. There has been considerable irregularity. Apeears to be unilateral, though left side is considerably more fragmentary. Also partial fusion of the 2nd and 3rd right metatarsals proximally.
Photographed.
Destruction of superior body of S1 and inferior L5. Evidence of abscess formation in the form of relatively smooth-walled cavities. Periosteal reaction on anterior S1, also slightly on S2 and S3. Some postmortem damage and erosion has also occurred. Photographed.

DENTAL PATHOLOGY - INDIVIDUAL RESULTS

Caries

8310128	$\overline{6}\|$	distal, medium
8310139	$\|\underline{7}$	only the roots remain
8310159	$\underline{8}\| \|\underline{6}$	only the roots remain
	$\underline{7}\| \|\underline{7}$	distal, slight, neck
	$\underline{6}\|$	mesial, medium
	$\|\underline{8}$	buccal, considerable, neck
8310166	$\|\underline{6}$	buccal, slight
	$\|\underline{7}\ \|8\ \overline{\|6}\ \overline{\|7}$	buccal, neck, slight
8310267	$\|\underline{6}\ \ \overline{7}\|$	mesial, slight
8310517	$\overline{8}\| \overline{\|8}$	occlusal, very slight

Abbscesses

8310139	$\|\underline{7}$	drains buccally. Tooth carious
	$\overline{\|6}$	drains buccally. Tooth lost postmortem
	$\overline{6}\|$	apical. Tooth lost postmortem
8310159	$\underline{8}\| \|\underline{6}$	apical, both teeth carious
8310267	$\overline{6}\|$	apical. Tooth lost postmortem

MISCELLANEOUS BONE

Fill 174 (Possibly same skeleton as 8310166)

2 sternal fragments
10 rib fragments
4 vertebral fragments
Right scaphoid
Right lunate
5 hand phalanges
Right 3rd cuboid
?metatarsal fragment
?femoral shaft fragment
+ several unidentified fragments, some of which are animal

Context 173

Maxillary molar (?3rd)

Context 189

1 rib fragment
Right ulna, distal end fragment
2 hand phalanges, middle row
Sacral fragment
Fragments of right and left os pubis, probably male
Right 1st metatarsal
Right and left 2nd metatarsal fragments
Right and left 1st proximal foot phalanges
1 foot phalanx, middle row

Context 240

Fragment of right rib

Context 303

2 scapular fragments
Left humerus, shaft fragment
4th left metacarpal
+ several unidentified longbone shaft fragments

Context 305

right ilium fragment, probably female
Right femur, proximal half
Left femur, proximal half
2 tibial shaft fragments
1 distal tibia fragment
Fragment of talus
3 metatarsal fragments

Context 327

Mandibular fragment - coronoid process
?clavicle shaft fragment
5 rib fragments
1 acetabular fragment
Infant: right and left radii
left rib

Context 341

Sternal half of right clavicle
1 rib fragment
Infant: left femur

Context 362

Mandibular premolar

Context 373

Parietal fragment
+ ?animal bone

Context 383

Femoral shaft fragment

Context 616

Fragment of left talus
Fragment of right calcaneus
2nd right metatarsal fragment
1st metatarsal fragment, unidentified to side
2 proximal row foot phalanges

Context 640

Right patella, incomplete (bipartite)

Context 714

3rd right metatarsal fragment

Context 720

Left femur, neck and head fragment
Fragment of proximal left femur
Fragment of distal left femur
Several femoral shaft fragments

Context 744

Subadult Right and left femoral shaft fragments
Right and left tibiae
Infant: Fragment of left ilium
+ fragment of animal/bird bone

Context 753

?Fragment of 1st metatarsal

Context 1004

Metatarsal fragment

Plate 1. Burial 8310340: Abscess near the root of the second premolar tooth

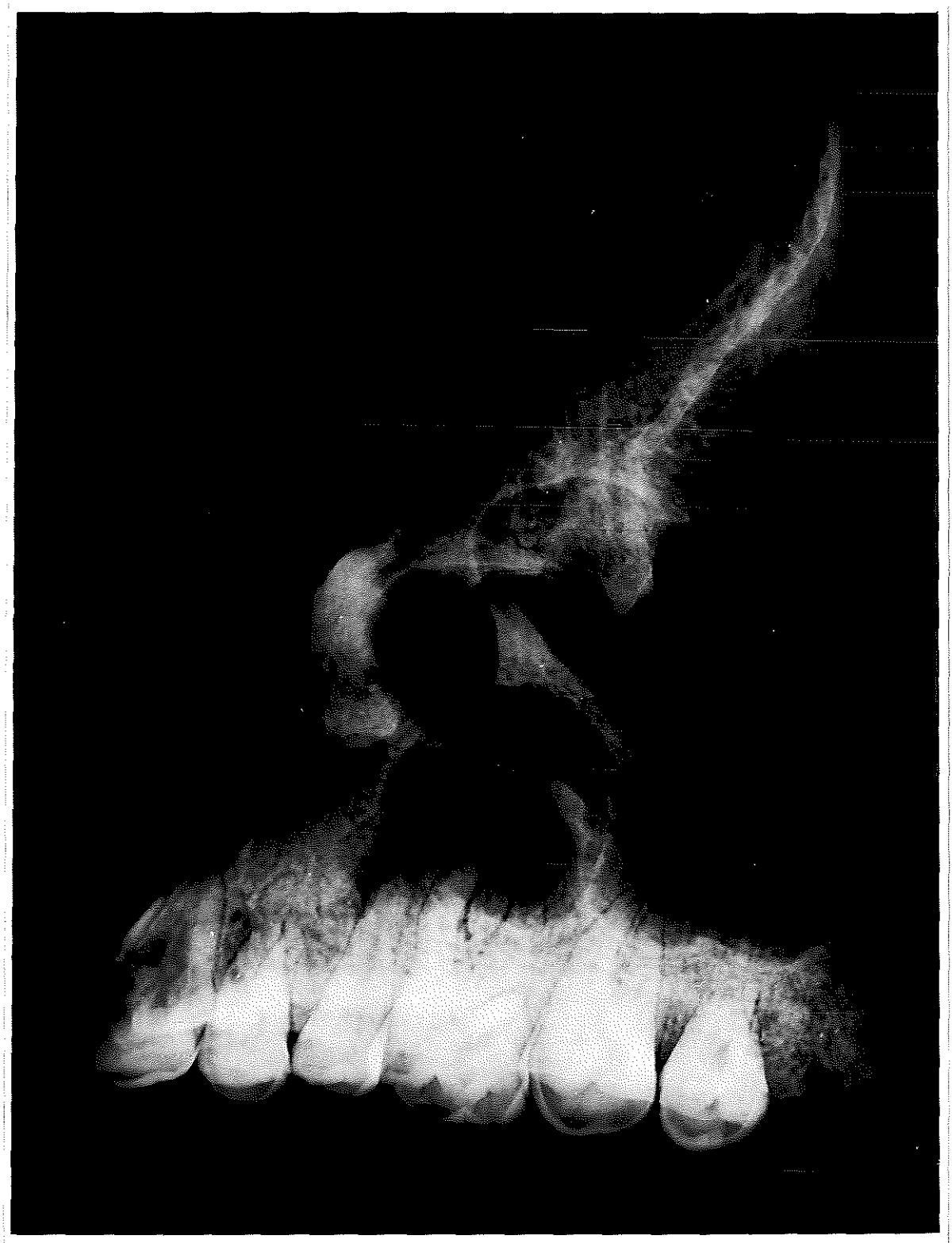

Plate 2. Burial 8310341: X-ray showing the presence of a large cavity encompassing the roots of the second premolar and the first molar

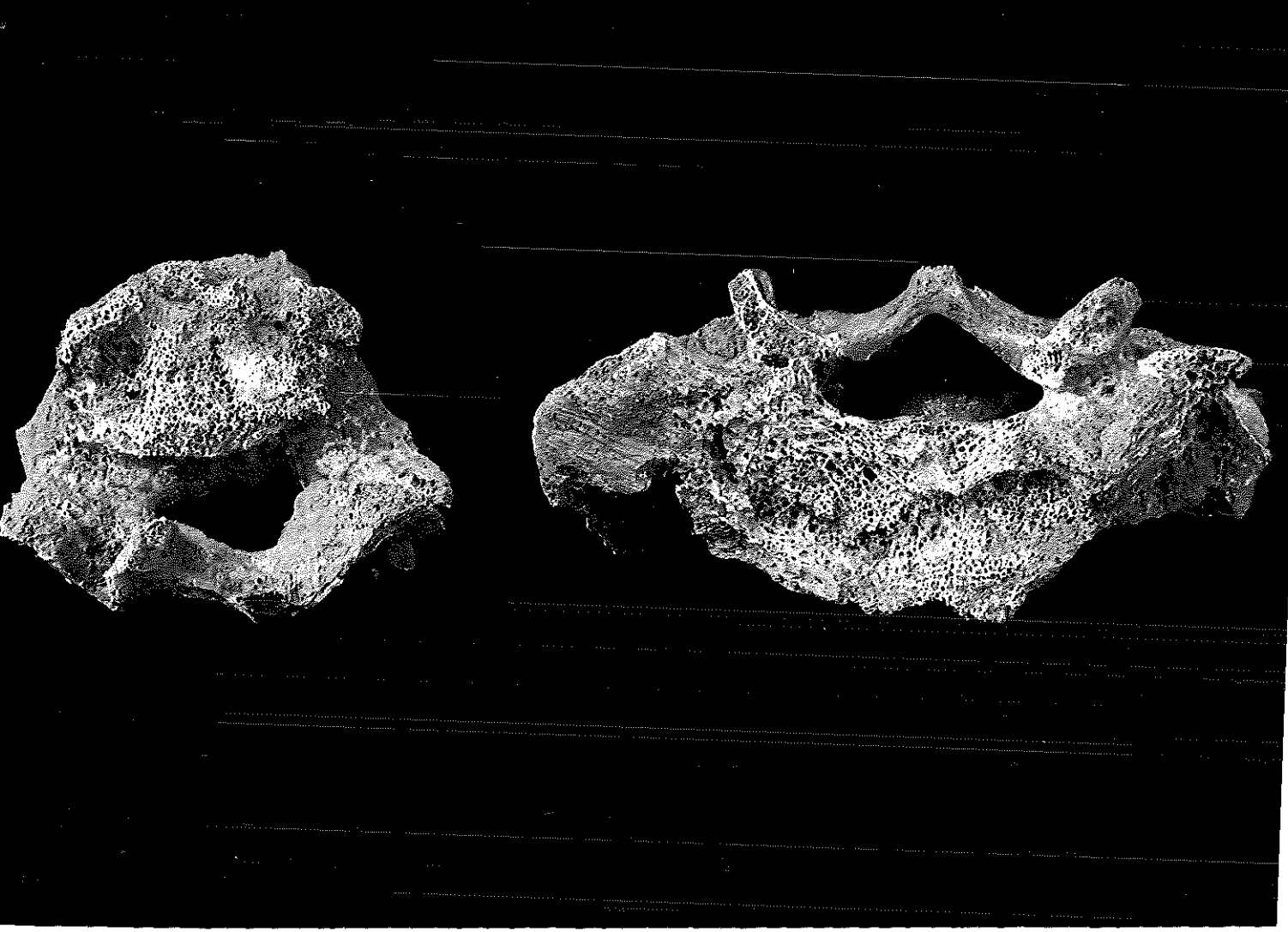

Plate 3. Burial 8310560: Lesions suggestive of infection in the 5th lumbar and 1st sacral vertebrae

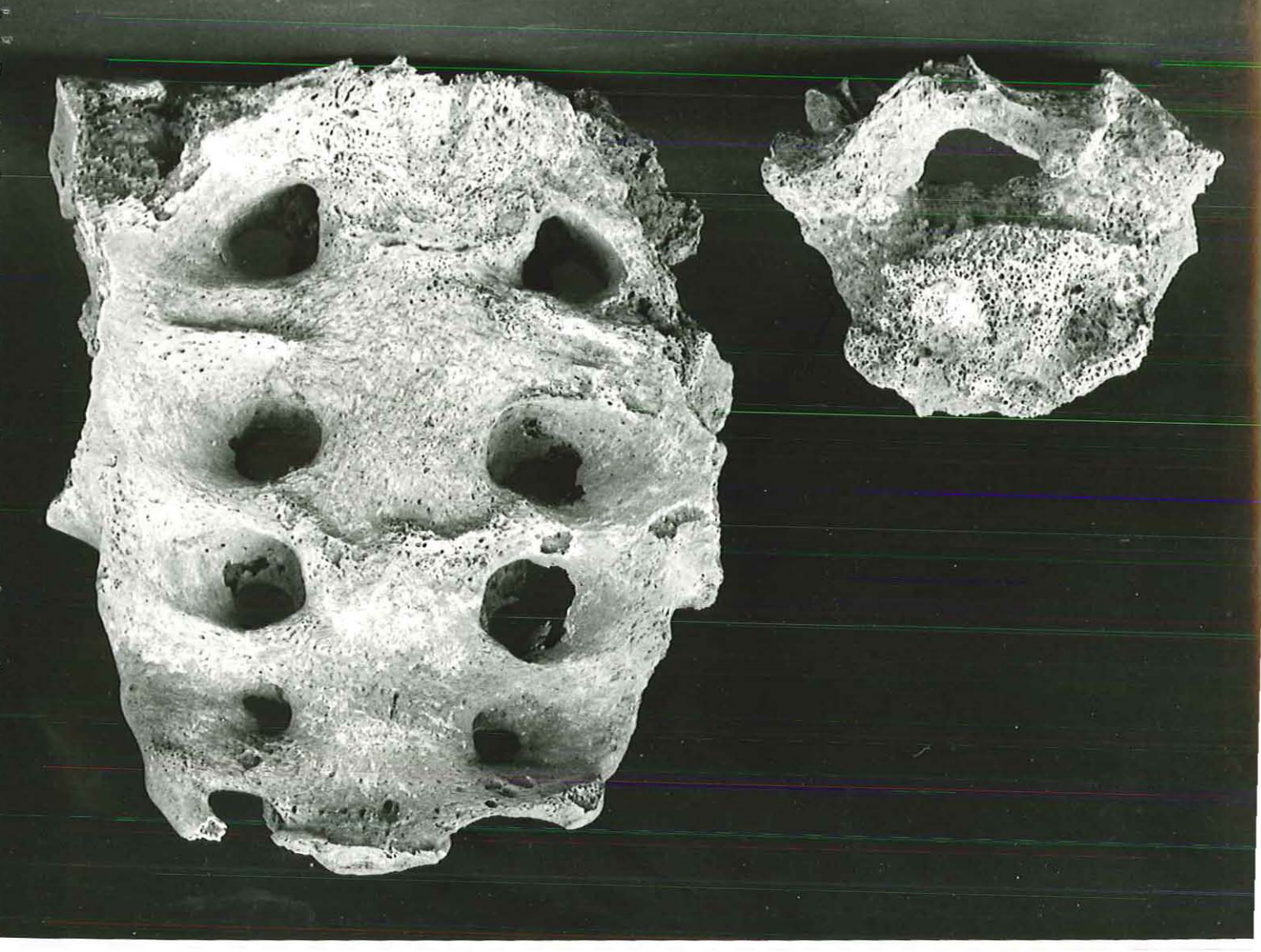

Plate 4. Burial 8310560: New bone formation in the 5th lumbar and 1st sacral vertebrae

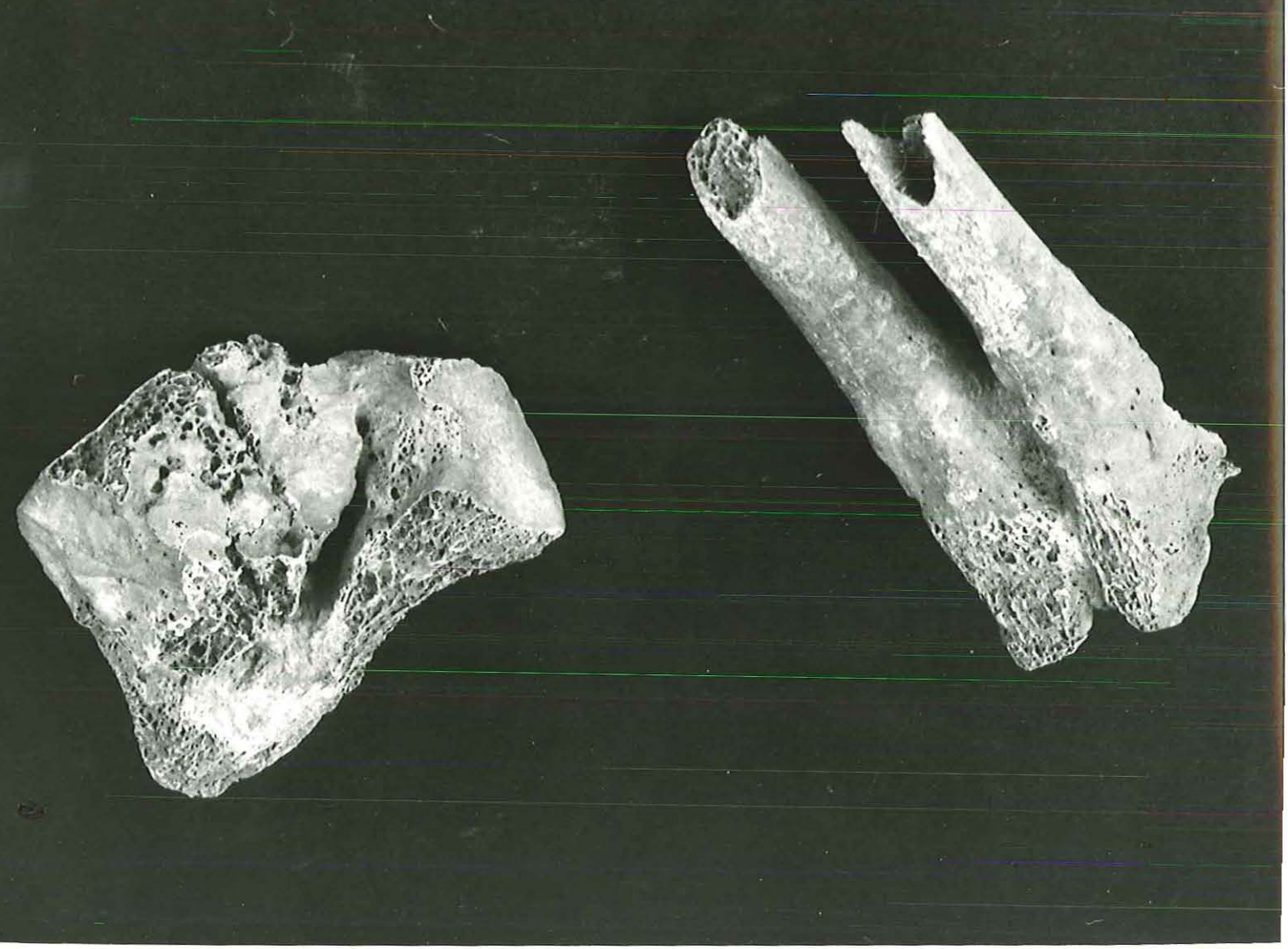

Plate 5. Burial 8310560: Fusion of bones of the left foot.